

Case 3004**LORISIDAE Gray, 1821 and GALAGIDAE Gray, 1825 (Mammalia, Primates): proposed conservation as the correct original spellings**

Jeffrey H. Schwartz

Department of Anthropology, University of Pittsburgh, Pittsburgh, Pennsylvania 152650, U.S.A. (e-mail: jhs+@pitt.edu)

Jeheskel Shoshani

Department of Biological Sciences, Wayne State University, Detroit, Michigan 48202, U.S.A.

Ian Tattersall

Department of Anthropology, American Museum of Natural History, New York, New York 10024, U.S.A.

Elwyn L. Simons

Duke University Primate Center, 3705 Erwin Road, Durham, North Carolina 27705, U.S.A.

Gregg F. Gunnell

Museum of Paleontology, University of Michigan, Ann Arbor, Michigan 48109, U.S.A.

Abstract. The purpose of this application is to conserve the family names LORISIDAE Gray, 1821 and GALAGIDAE Gray, 1825 which are in use for two groups of prosimian primates, the lorises of Asia, East Indies and Africa, and the bushbabies of Africa. The families are based on the genera *Loris* and *Galago*, both of E. Geoffroy Saint-Hilaire (1796), and were first published as LORIDAE and GALAGONINA.

Keywords. Nomenclature; taxonomy; Mammalia; Primates; LORISIDAE; LORIDAE; GALAGIDAE; GALAGONIDAE; lorises; bushbabies; Asia; East Indies; Africa.

1. Since Gregory's (1915) classification of Primates the subfamily names LORISINAE and GALAGINAE, based on the genera *Loris* and *Galago*, both of E. Geoffroy Saint-Hilaire (1796, pp. 48 and 49 respectively), have been widely used. Among the major works employing either or both of these names are Gregory (1922), Hollister (1924), Allen (1939), Pocock (1939), Chasen (1940), Hill (1953), Simpson (1965, 1967), Walker (1970, 1974), Kingdon (1971), Bearder & Doyle (1974), Charles-Dominique (1974), Groves (1974), Marechal, Goffart, Reznik & Gerebtzoof (1976), McArdle (1978), Schwartz & Tattersall (1985), MacPhee & Jacobs (1986), Masters (1988), Zimmermann (1988), Zimmermann, Bearder, Doyle & Andersson (1988), Gebo (1989), Schwartz (1992), Crovella, Masters & Rumpler (1994), Masters et al. (1994), Schwartz & Beutel (1995). Texts and works of reference in wide current use

that use these names include Simpson (1945), Szalay & Delson (1979), Simons (1982), Anderson & Jones (1984), Fleagle (1988) and Martin (1990). The names have also been used for families, LORISIDAE and GALAGIDAE.

2. Recently, Jenkins (1987, p. 1) pointed out that since both *Loris* and *Galago* are neither Latin nor Greek names, the nomenclatural stem is that determined by the author who established the family-group name (Article 29b(ii) of the Code). Thus, in making available the family name LORIDAE and the tribe name GALAGONINA, Gray (1821, p. 298) and (1825, p. 338) respectively determined the stems as '*Lor*-' and '*Galagon*-'.

3. Use of family-group names based on the stems '*Lor*-' and '*Galagon*-' has been very uncommon. Only Mivart (1864) used GALAGININAE (sic) for the bushbabies and Corbet & Hill (1992) used LORIDAE for the lorises. The names LORISINAE and GALAGINAE were both first used by Flower & Lydekker (1891, pp. 691 and 689 respectively). Simpson (1945, p. 62, footnote) recorded that 'Many authors use '*Loridae*' for the family and '*Lorisinae*' for the subfamily, which is inconsistent'. He incorrectly stated the generic name stem to be '*Loris*-' and retained the '-is' in the family-group names.

4. An application for the conservation of the generic name *Loris* E. Geoffroy Saint-Hilaire, 1796 by Gentry, Groves, Jenkins & Hill was published in BZN 51: 332-335 (December 1994). These authors have proposed that *Loris*, and the name of its type species *Lemur tardigradus* Linnaeus, 1758, which refers to the slender loris from Sri Lanka and southern India, be placed on Official Lists, and that *Tardigradus* Boddaert, 1785, a virtually unused senior synonym of *Loris*, should be suppressed. The outcome of that case will not affect the current application since a family-group name based on *Loris* will remain valid independently of the validity of *Loris* itself. The type species by monotypy of *Galago* is *G. senegalensis* E. Geoffroy Saint-Hilaire, 1796, the bushbaby from Senegal, Ethiopia, Angola and South Africa.

5. The names LORIDAE and GALAGONIDAE are formally correct but have been very rarely used. To introduce now these names in place of the virtually universally used LORISIDAE and GALAGIDAE would result in confusion and would not be in accord with the Code, which urges stability in nomenclature.

6. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to rule that for the purposes of Article 29 the stems of the following generic names are as shown:
 - (a) *Loris* E. Geoffroy Saint-Hilaire, 1796: the stem is LORIS-;
 - (b) *Galago* E. Geoffroy Saint-Hilaire, 1796: the stem is GALAG-;
- (2) to place on the Official List of Generic Names in Zoology the name *Galago* E. Geoffroy Saint-Hilaire, 1796 (gender: masculine), type species by monotypy *Galago senegalensis* E. Geoffroy Saint-Hilaire, 1796;
- (3) to place on the Official List of Specific Names in Zoology the name *senegalensis* E. Geoffroy Saint-Hilaire, 1796, as published in the binomen *Galago senegalensis* (specific name of the type species of *Galago* E. Geoffroy Saint-Hilaire, 1796);
- (4) to place on the Official List of Family-Group Names in Zoology the following names:
 - (a) LORISIDAE Gray, 1821, type genus *Loris* E. Geoffroy Saint-Hilaire, 1796;
 - (b) GALAGIDAE Gray, 1825, type genus *Galago* Geoffroy Saint-Hilaire, 1796;

- (5) to place on the Official Index of Rejected and Invalid Family-Group Names in Zoology the following names:
- (a) LORIDAE Gray, 1821 (spelling emended to LORISIDAE by the ruling in (1)(a) above);
 - (b) GALAGONINA Gray, 1825 (spelling emended to GALAGIDAE by the ruling in (1)(b) above).

References

- Allen, G.M. 1939. A checklist of African mammals. *Bulletin of the Museum of Comparative Zoology, Harvard College*, **83**: 1–763.
- Anderson, S. & Jones, J.K. (Eds.). 1984. *Orders and families of recent mammals of the world*. xii, 686 pp. Wiley, New York.
- Bearder, S.K. & Doyle, G.A. 1974. Ecology of bushbabies, *Galago senegalensis* and *Galago crassicaudatus*, with some notes on their behaviour in the field. Pp. 109–130 in Martin, R.D., Doyle, G.A. & Walker, A.C. (Eds.), *Prosimian biology*. Duckworth, London.
- Charles-Dominique, P. 1974. Ecology and feeding behaviour of five sympatric lorises in Gabon. Pp. 131–150 in Martin, R.D., Doyle, G.A. & Walker, A.C. (Eds.), *Prosimian biology*. Duckworth, London.
- Chasen, F.N. 1940. A handlist of Malaysian mammals. *Bulletin of the Raffles Museum, Singapore, Straits Settlement*, **15**: 1–209.
- Corbet, G.B. & Hill, J.E. 1992. *The mammals of the Indomalayan region: a systematic review*. 488 pp., 45 figs., 177 maps. Natural History Museum, London.
- Crovella, S., Masters, J.C. & Rumpler, Y. 1994. Highly repeated DNA sequences as phylogenetic markers among the Galaginae. *American Journal of Primatology*, **32**: 177–185.
- Fleagle, J.G. 1988. *Primate adaptation and evolution*. xix, 486 pp. Academic Press, New York.
- Flower, W.H. & Lydekker, R. 1891. *An introduction to the study of mammals living and extinct*. xvi, 763 pp. Black, London.
- Gebo, D.L. 1989. Postcranial adaptation and evolution in Lorisidae. *Primates*, **30**: 347–367.
- Geoffroy Saint-Hilaire, E. 1796. Mémoire sur les rapports naturels des makis, *Lemur L.* et description d'une espèce nouvelle de mammifère. *Magasin Encyclopédique, ou journal des sciences, des lettres et des arts*, (2)1(1): 20–50.
- Gray, J.E. 1821. On the natural arrangement of vertebrate animals. *London Medical Repository*, **15**(1): 296–310.
- Gray, J.E. 1825. Outline of an attempt at the disposition of Mammalia into tribes and families, with a list of the genera apparently appertaining to each tribe. *Annals of Philosophy*, (N.S.) **10**: 337–344.
- Gregory, W.K. 1915. On the classification and phylogeny of the Lemuroidea. *Bulletin of the Geological Society of America*, **26**: 426–446.
- Gregory, W.K. 1922. *The origin and evolution of human dentition*. xviii, 548 pp., 14 pls. Williams & Wilkins, Baltimore.
- Groves, C. 1974. Taxonomy and phylogeny of prosimians. Pp. 449–473 in Martin, R.D., Doyle, G.A. & Walker, A.C. (Eds.), *Prosimian biology*. Duckworth, London.
- Hill, W.C.O. 1953. *Primates: comparative anatomy and taxonomy*, vol. 1 (Strepsirrhini). xxiii, 798 pp. University of Edinburgh Press, Edinburgh.
- Hollister, N. 1924. *East African mammals in the United States National Museum*, part 3 (Primates, Artiodactyla, Perissodactyla, Proboscidea, and Hyracoidea). *Bulletin of the United States National Museum*, **99**: 1–164.
- Jenkins, P.D. 1987. *Catalogue of primates in the British Museum (Natural History) and elsewhere in the British Isles*, part 4 (suborder Strepsirrhini, including the subfossil Madagascan lemurs and family Tarsiidae). x, 189 pp. British Museum (Natural History), London.
- Kingdon, J. 1971. *East African mammals: an atlas of evolution in Africa*, vol. 1. x, 446 pp. University of Chicago Press, Illinois.
- MacArdle, J.E. 1978. Functional anatomy of the hip and thigh of the Lorisidae: correlations with behaviour and ecology. Pp. 133–138 in Chivers, D.J. & Joysey, K.A. (Eds.), *Recent advances in primatology*, vol. 3 (Evolution). Academic Press, London.

- MacPhee, R.D.E. & Jacobs, L.L. 1986. *Nycticeboides simpsoni* and the morphology, adaptations, and relationships of Miocene Siwalik Lorisidae. Pp. 131–161 in Flanagan, K.M. & Lillegraven, J.A. (Eds.), *Vertebrates, phylogeny, and philosophy*. Contributions to Geology, University of Wyoming, Special Paper 3.
- Marchal, G., Goffart, M., Reznik, M. & Gerebtzoff, M.A. 1976. The striated muscles in a slow-mover, *Perodicticus potto* (Prosimii, Lorisidae, Lorisinae). *Comparative Biochemistry and Physiology*, **54A**: 81–93.
- Martin, R.D. 1990. *Primate origins and evolution*. xiv, 804 pp. Chapman & Hall, London.
- Masters, J. 1988. Speciation in the greater galagos (Prosimii: Galaginae): review and synthesis. *Biological Journal of the Linnean Society*, **34**: 149–174.
- Masters, J.C., Raynor, R.J., Ludewick, H., Zimmermann, E., Molez-Verriere, N., Vincent, F. & Nash, L.T. 1994. Phylogenetic relationships among the Galaginae as indicated by erythrocytic allozymes. *Primates*, **35**: 177–190.
- Mivart, St.-G. 1864. Notes on the crania and dentition of the Lemuridae. *Proceedings of the Zoological Society of London*, **1864**: 611–648.
- Pocock, R.I. 1939. *The fauna of British India, including Ceylon and Burma. Mammalia*, vol. 1 (Primates and Carnivora (in part). families Felidae and Viverridae). xxxiii, 463 pp. Taylor & Francis, London.
- Schwartz, J.H. 1992. Phylogenetic relationships of African and Asian lorises. Pp. 65–81 in Matano, S., Tuttle, R.H., Ishida, H. & Goodman, M. (Eds.), *Topics in primatology*, vol. 3 (Evolutionary biology, reproductive endocrinology, and virology). University of Tokyo Press, Tokyo.
- Schwartz, J.H. & Beutel, J. 1995. Species diversity in lorises; a preliminary analysis of *Arctocebus*, *Perodicticus*, and *Nycticebus*. Pp. 171–192 in Alterman, L., Doyle, G.A. & Ixard, M.K. (Eds.), *Creatures of the dark: the nocturnal prosimians*. Plenum, New York.
- Schwartz, J.H. & Tattersall, I. 1985. Evolutionary relationships of the living lemurs and lorises and their potential affinities with the European Eocene Adapidae. *Anthropological Papers of the American Museum of Natural History*, **60**: 1–100.
- Simons, E.L. 1982. *Primate evolution: an introduction to man's place in nature*. xii, 322 pp. Macmillan, New York.
- Simpson, G.G. 1945. The principles of classification and a classification of mammals. *Bulletin of the American Museum of Natural History*, **85**: 1–350.
- Simpson, G.G. 1965. Family Galagidae. Pp. 15–16 in Leakey, L.S.B., *Olduvai Gorge, 1951–1961*, vol. 1. University of Cambridge Press, Cambridge.
- Simpson, G.G. 1967. The tertiary lorisiform primates of Africa. *Bulletin of the Museum of Comparative Zoology, Harvard College*, **136**: 39–61.
- Szalay, F.S. & Delson, E. 1979. *Evolutionary history of the primates*. xv, 580 pp. Academic Press, New York.
- Walker, A.C. 1970. Post-cranial remains of the Miocene Lorisidae of East Africa. *American Journal of Physical Anthropology*, **33**: 249–262.
- Walker, A.C. 1974. Locomotor adaptations in past and present prosimian primates. Pp. 349–381 in Jenkins, F. (Ed.), *Primate locomotion*. Academic Press, New York.
- Zimmermann, E. 1988. Zur Artenproblematik der Halbaffenfamilie Lorisidae-Bioakustik und Fortpflanzungsbiologie. Pp. 76–89 in Horn, H.G. (Ed.), *Erfolge und Probleme bei der Zucht von Wildtieren in Menschlicher Obhut*. Bundesverband für fachgerechten Natur und Artenschutz, Köln.
- Zimmermann, E., Bearder, S.K., Doyle, G.A. & Andersson, A.B. 1988. Variations in vocal patterns of Senegal and South African lesser bushbabies and their implications for taxonomic relationships. *Folia Primatologica*, **51**: 87–105.

Comments on this case are invited for publication (subject to editing) in the *Bulletin*; they should be sent to the Executive Secretary, I.C.Z.N., c/o The Natural History Museum, Cromwell Road, London SW7 5BD, U.K. (e-mail: iczn@nhm.ac.uk).